



Electron Beam Generators



If you need information about the PHYSICAL BACKGROUND of electron beam material processing, we are pleased to answer your questions. Don't hesitate contacting us.

Electrons are emitted from a directly heated cathode and, by employing voltages of 60 to 175 kV, accelerated to speeds as high as approx. 2/3 of the speed of light in the electron beam generator of the electron beam column.

The high power electron beam produced in this manner is then focused onto the workpiece, causing the electrons in the beam to abruptly decelerate and converting their kinetic energy directly into heat energy.

The power density of over 1 kW/mm^2 being employed produces a spontaneous evaporation of the workpiece material and thus leads to the so called key hole effect.

PTR electron beam generators achieve power densities of over 100 kW/mm^2 and thus open up a wide range of applications for electron beam technology.

Depending on the application and the related specification we propose different voltages and pressure levels in the workpiece environment. High and partial-vacuum systems reach output powers of up to 60 kW at acceleration voltages of 60 kV or 150 kV. Atmospheric systems operate at 175 kV and up to 40 kW.

Fields of application

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